



Technical Memo



2 August 2018

F45 Training
233 Charles St
Launceston TAS 7250

5152_AC_R
AJM

Attn: Ms Danica Reeves

Dear Madam,

RE: Potters House environmental noise emission assessment.

Please find below our environmental noise emission assessment of the proposed F45 Training development at Potters House, 233 Charles St, Launceston.

1. INTRODUCTION

Tarkarri Engineering was commissioned by F45 Training to undertake an environmental noise assessment of a proposed commercial development at Potters House, 233 Charles St, Launceston. The proposed development would involve the use of the existing building as a gym to conduct fitness classes. The premises would be utilised for classes between the hours of 0530 and 1900 hrs.

The assessment is a requirement under the Launceston Interim Planning Scheme 2015 with the premises located with the Urban Mixed Zone under the scheme. The relevant section of the scheme is *D15.3.4* and is as follows:-

15.3.4 Noise level

Objective:

To ensure that noise levels from uses do not unreasonably impact on the amenity of nearby sensitive uses.

Acceptable Solutions

A1

Noise generated by a use on the site must:

- (a) not exceed a time average A-weighted sound pressure level (Leq) of 5 dB(A) above background during operating hours when measured at the boundary of an existing sensitive use adjoining or immediately opposite the site; or

Performance Criteria

P1

Noise levels generated by a use on the site must not unreasonably impact on the amenity of nearby sensitive uses, having regard to:

- (a) the nature and intensity of the use;
- (b) the characteristics of the noise emitted;
- (c) background noise levels;
- (d) any mitigation measures proposed;





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| (b) be in accordance with any permit conditions required by the Environment Protection Authority or an environmental protection notice issued by the Director of the Environment Protection Authority. | (e) the topography of the site; and |
| | (f) the character of the surrounding area. |

Figure 1 provides an aerial view of the Potter House premises (marked in green) and surrounds. The closest residential premises (i.e. sensitive use) is located diagonally opposite at 30 Canning St. Figure 2 provides a floor plan of Potters House with the F54 Training area shaded in green.



Figure 1 – Aerial view Potters House (highlighted in green) and surrounds.

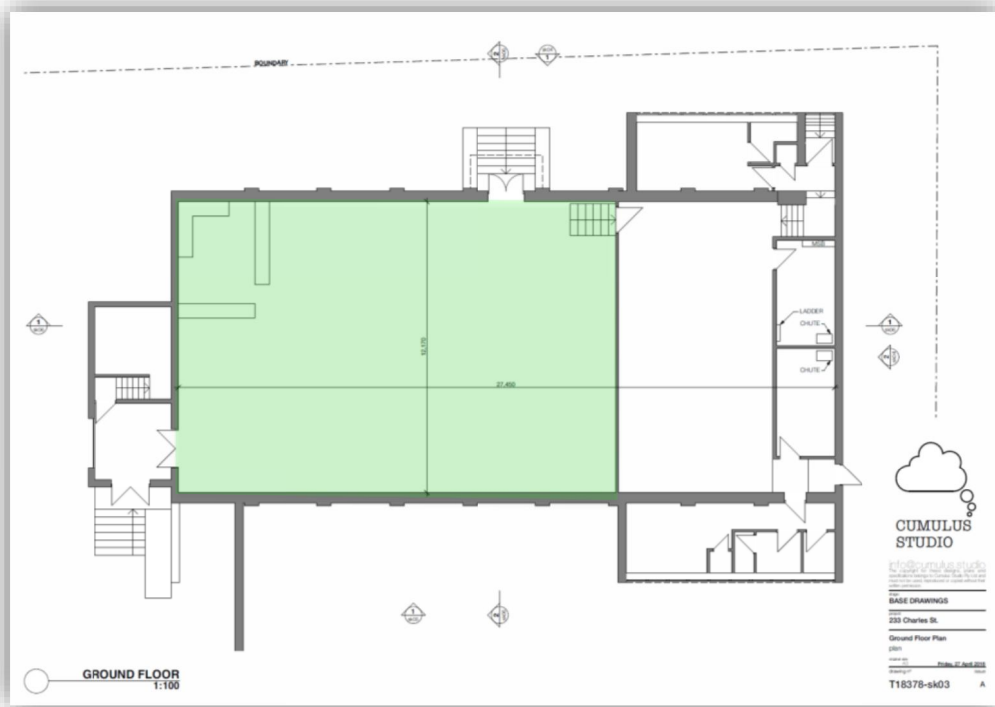


Figure 2 – Potters House floor plan (F45 Training area shaded in green).



2. ENVIRONMENTAL NOISE

2.1 Monitoring

To establish ambient noise conditions in the area of the proposed development observed measurement of environmental noise conditions were conducted on 27 July 2018 between 0530 and 0600 hrs (this is considered the operational period when ambient noise levels are likely to be lowest). Relevant A-weighted 10-minute Ln-statistics were recorded with a type 1 logging sound level meter (Larson Davis 831) at a location on Canning St.

All measurements were carried out in general accordance with the *Tasmanian Noise Measurements Procedures Manual*.

Figure 3 shows the location where observed measurements were conducted.



Figure 3 – Observed measurement location, Canning St, Launceston.

The monitoring data is presented graphically in figure 4 with selected 10-minute statistical data provided as follows:-

- L_{Aeq} : equivalent continuous noise level
- L_{A10} : noise level exceeded for 10% of a given time period. Representative of transient noise sources, e.g. traffic.
- L_{A90} : Noise level exceeded for 90 % of a given time period. Typically referred to as the background noise level.



For sake of clarity the other 5 data sets are not shown in the graph.

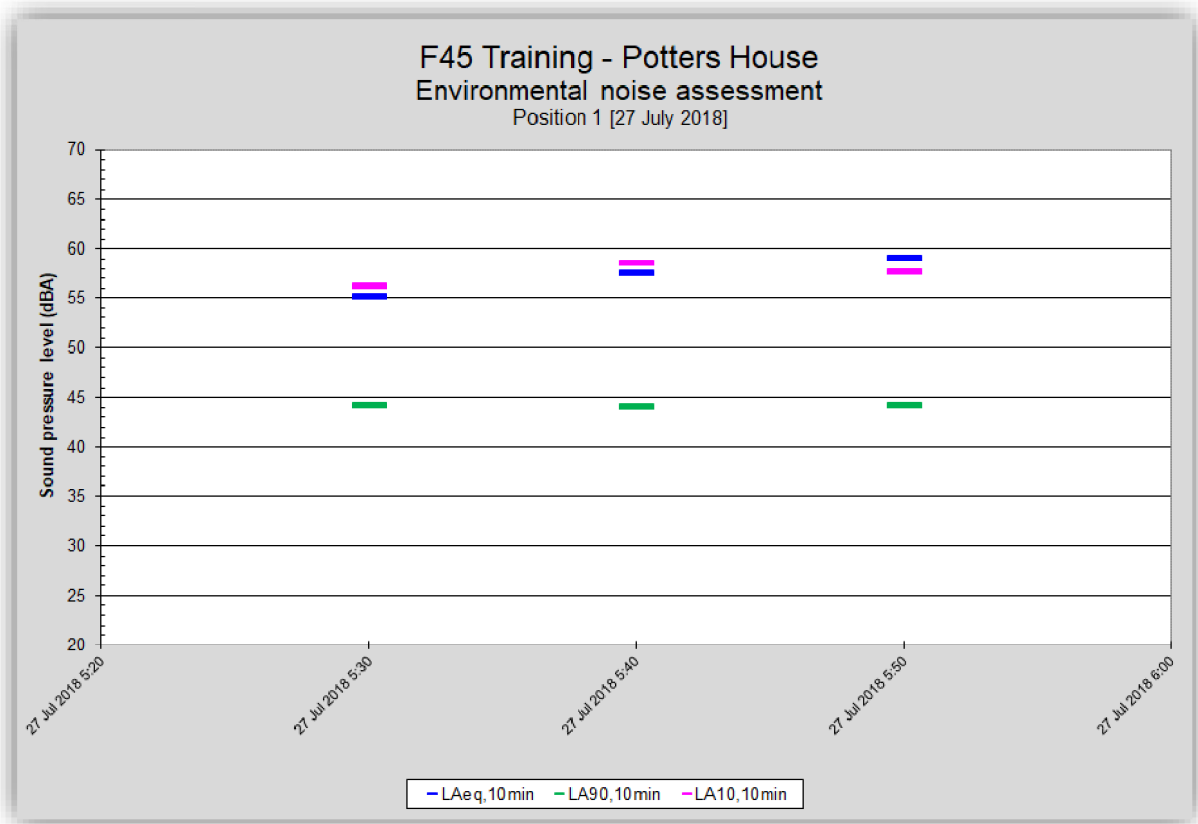


Figure 4 – Logged 10-minute Ln-statistics.

From the above:-

- LAeq and LA10 levels were between 55 and 60 and were controlled by traffic flow on nearby streets.
- LA90 levels remained relatively constant at approx. 45 dBA and were controlled by distant traffic flow.

2.2 Predicted environmental noise

To predict potential noise emission levels from F45 Training operations at Potters House Tarkarri Engineering conducted the following tasks:-

- Measured typical internal 1/3-octave band spectra during operations at F45 Trainings existing Launceston premises at 67 George St (measurements were conducted in the absence of class participants and were simulated by F45 Training staff).
- Site visit to Potters House to conduct a review of building facade elements pertinent to sound transmission.
- Predict sound transmission loss spectra for critical building facade elements of the Potters House structure.
- Predict potential noise emission levels at the closest sensitive use from the breakout of F45 Training operational noise at the Potters House premises.



Figure 5 provides a photograph of the existing F45 Training premises at 67 George St where internal operation noise spectra were measured. Figure 6 provides an average L_{Aeq} 1/3-octave band spectrum measured at the 67 George St premises (overall level of 78 dBA).



Figure 5 – Photograph of the existing F45 Training premises at 67 George St, Launceston.

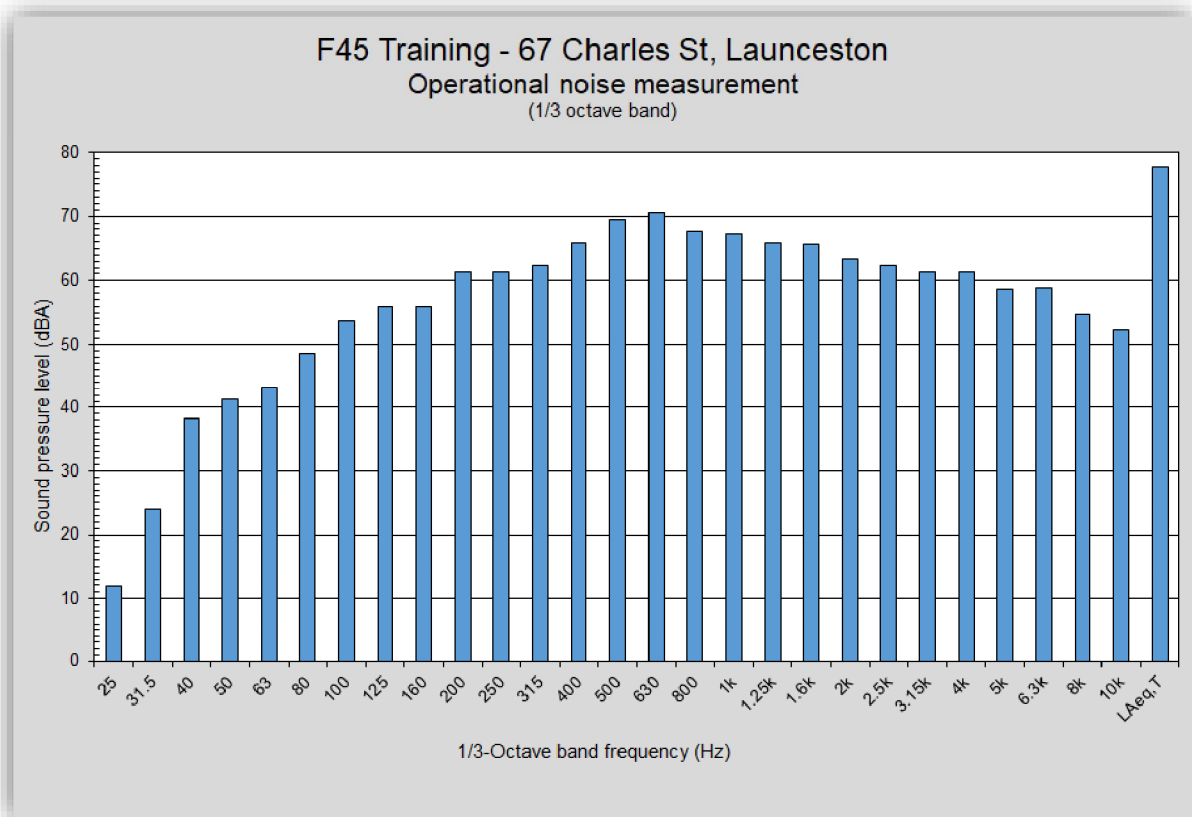


Figure 6 – Average L_{Aeq} 1/3-octave band spectrum of internal operational noise.



Review of the building facade elements at the Potters House premises revealed that the likely noise breakout points from the structure would be through the glazed elements and through the roof/ceiling structure (The walls were disregarded as the masonry structure is expected to provide very high sound transmission loss). Sound transmission loss spectra were predicted for these elements using mass law calculations with coincidence and shear wave effects and reduced radiation efficiency at low frequencies considered.

The resulting transmission loss spectra and average internal operation noise spectrum were used to construct a model of operational noise breakout from the Potters House premises using SoundPLAN modelling software.

Figure 6 below provides a model plan view with aerial photographic underlay of the Potters House premises model while figure 7 presents a wire-frame view of the model from the south south-east.

Red bordered areas on the building designate noise emission sources, i.e. glazed elements and roof/ceiling structure.



Figure 6 – Model plan view.

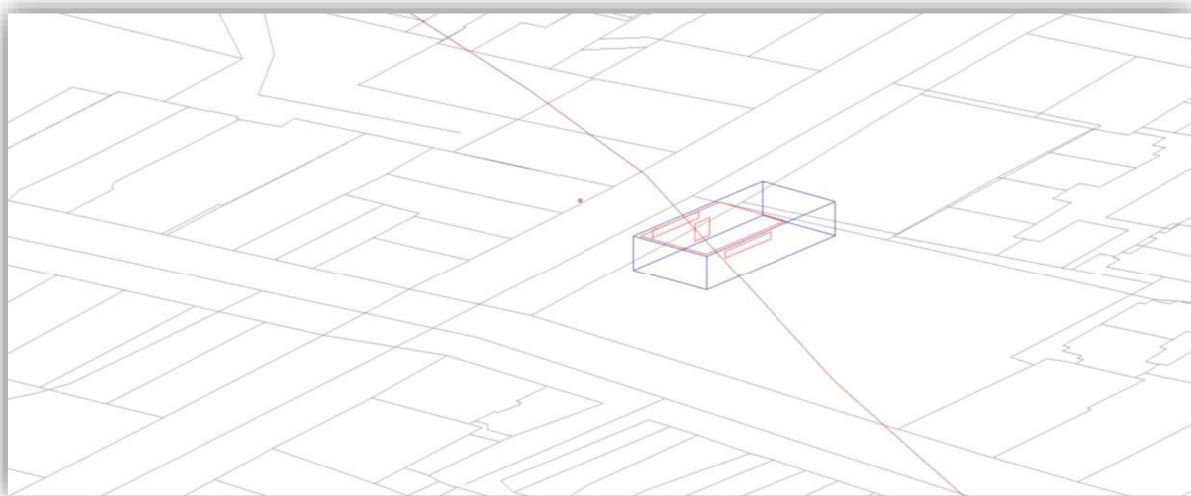


Figure 7 Model wire-frame view.



The resulting predicted noise level from F45 Training operational noise breakout from the Potter House premises is 36 dBA at the nearest sensitive use (i.e. 30 Canning St).

3. CONCLUSIONS AND RECOMMENDATIONS

1. The predicted noise emission level at the nearest sensitive use from F45 Training operational noise breakout at the Potter House premises is 11 dBA below the measured 'background' ($L_{A90,10min}$) noise levels and at this level would meet the relevant 'acceptable solution' criteria under the Launceston Interim Planning Scheme 2015 (see section 1 of this report for details).
2. Based on the assumptions made in developing sound transmission loss spectra for the critical facade elements of the Potters House premises and measurement of internal operational noise at 67 George St, Tarkarri Engineering provides the following recommendations:-

- a. Operable panels in the upper windows in the northern and southern facades of Potters House premises should be sealed with a flexible sealant to prevent acoustic leakage.
- b. Degraded insulation in the roof/ceiling cavity should be replaced with a minimum R4 fibreglass or rockwool insulation.
- c. A vent at the western end of the roof/ceiling cavity should be sealed off with minimum 6 mm thick compressed fibre cement (CFC).

NB: The above recommendations are marked on photographs of the Potters House premises provided below for visual reference.

- d. Reverberant noise levels in the F45 Training area of Potters House shouldn't exceed 85 dBA and 90 dBC on a 1-minute Leq basis.

NB: Internal noise levels as measured at 67 George St don't warrant monitoring of internal noise levels at Potters House. Should F45 Training wish to raise internal noise levels significantly above those that were measured then a monitoring system at Potters House may be required to manage potential excessive noise breakout from the premises.





I hope this information meets your immediate requirements.

Please contact me directly if you have any questions concerning this work.

Yours faithfully,
Tarkarri Engineering Pty Ltd

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